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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,584	02/02/2002	Sterling J. Backus	C01.110	1955

26344 7590 08/05/2003

JENNIFER L. BALES  
MOUNTAIN VIEW PLAZA  
1520 EUCLID CIRCLE  
LAFAYETTE, CO 80026-1250

EXAMINER
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NGUYEN, TUAN N

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/062,584

Applicant(s)

BACKUS ET AL.

Examiner

Tuan N Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

  
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- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/2/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite, vague, and confusing for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, **for example**.

Claims 1, 12 recite a single stage laser amplifying apparatus comprising: *an oscillator* amplifying input light; *a pump laser for pumping*; and *an amplifier for amplifying the input light*, the amplifier pumped by the pump laser. It is vague and indefinite as to what the pump laser is pumping; if the pump laser is pumping a beam to the amplifier, then it is not clear the difference between the *amplifier* and the *oscillator assembly for providing input light to be amplified*. It is vague and indefinite as to the location of the amplifier (*inside/outside of the oscillator*). Furthermore, claim 12 is vague and indefinite as to “*the amplifier includes a cryogenically cooled amplifying medium*”, is the medium cooled (in a liquid or gas medium, or just cooled by thermal transmission) There is insufficient means, structure and functional relationship, which render the claims vague and indefinite. Claims 2-11 are rejected base on the same reason.

Claim 13 recites a method of amplifying a coherent light beam in a single stage, comprising the steps of: *providing* input light...; *pumping light* with pump laser; and *amplifying* the pumped light with an amplifier, wherein the amplifier includes a cryogenically-cooled

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amplifying medium. It is vague and indefinite as to what means use for providing coherent input light, and is the pump laser pump additional light to combine with the coherent light?; Similar with claims 1, and 12. There is insufficient means, structure and functional relationship, which render the claims vague and indefinite. Claims 14-20 are rejected base on the same reason.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of 35 U.S.C. 102(b) which forms the basis for all obviousness rejections set forth in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 13 are rejected under 35 U.S.C. 102(b) as being unpatentable over Mollenauer (US 39700960). Mollenauer '960 shows in figure 1 a single stage laser amplifying apparatus, comprising a pump laser, an oscillator assembly, and an amplifier having a medium being cooled cryogenically by Nitrogen (Fig 11-30).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
6. Claims 2,3, 6, 8, 9, 11, 12, 14,15, 18, 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US 39700960) in view of Weingarten et al (US 5987049) and Plaessmann et al. (US 5615043).

With respect to claims 8, 9, 11, 12, 20 Mollenauer '960 discloses the above except the amplifying medium selected from the following list; " a)...t) Weingarten '049 disclose the use of  $\text{Ti:Al}_2\text{O}_3$  and other laser medium (Col 3: 50-52; Col 4: 45-55; Col 6: 5-15). For the benefit of a  $\text{Ti:Al}_2\text{O}_3$  or other amplifying medium, it would have been obvious to one of ordinary skill in the art to provide Mollenauer '960 the element as taught or suggested by Weingarten '049. It has been held, to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With respect with claims 2, 3, 14,15 Weingarten '049 discloses the high output power more than 3watt (Col 2: 10-15) and  $M^2$  approximately 1 (Col 2: 35-40).

With respect to claims 6, 18 Weingarten '049 shows in figure 1 the regenerative amplification.

7. Claims 4,5,7,16,17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US 39700960) in view of Weingarten et al (US 5987049) and Plaessmann et al. (US 5615043). Mollenauer '960 and Weingarten et al. discloses the above except the single pass and

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multipass high gain configuration. Plaessmann '043 shows in (Fig 1-6) the single pass and multipass high gain configuration. It would have been obvious to one skill in the art to use Plaessmann '043 different passing configuration to amplify the signal.

### ***Citation of Pertinent References***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is cited primarily to show the product of the instant invention.


Kubota et al. (US006240111B1), Knapp et al. (US 3638140), Masuda (US006055249A) (US006249371B1)(US 20020171912A1) (US 20020034198A1) (US 20030099262A1), Sucov et al. (US 3936772), Born et al. (US 4100507), Shackelford et al. (US 4119 929), Vetrovec (US006154478A ), Wada et al. (US006181461B1) discloses laser beam generating apparatus.

### ***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (703) 605-0756. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

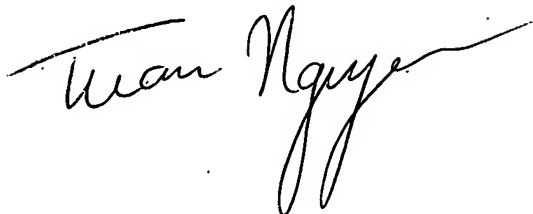
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

  
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Tuan N. Nguyen

A handwritten signature in black ink, appearing to read "Tuan Nguyen", with a long horizontal flourish extending to the right.